REVIEW AND APPROVALS

DRIFTLESS AREA NATIONAL WILDLIFE REFUGE

McGregor, Iowa

ANNUAL NARRATIVE REPORT

Calendar Year 1991

John R Lyons 2-20-92

District Manager Date

James R Fennimore 2/24/92

Refuge Manager Date

Ed Crozier 4/3/92

Refuge Supervisor Review Date

Robert T Welford 4-6-92

Regional Office Approval Date

INTRODUCTION

The Driftless Area National Wildlife Refuge was established in October 1989 and is still in it's early years of development and management. Presently, 506 acres have been purchased in Clayton, Dubuque, and Jackson counties of northeast Iowa. Eventually, the Refuge may include tracts of land reaching into southwest Wisconsin, northwest Illinois, and possibly southeast Minnesota.

The Refuge, consisting of widely scattered tracts of land, was established to protect the federally endangered Iowa Pleistocene snail (Discus macclintocki) and the federally threatened northern monkshood plant (Aconitum noveboracense). These two species, along with other rare snails and plants, are found almost exclusively on cool, moist, shaded hillsides, many of which are classed as algific talus slopes.

Algific talus slopes are unique because of the seepage of cold air and/or water from the bedrock. Under a layer of loose talus is a series of cracks and fissures which connect to one or more sinkholes on adjacent uplands. In winter, water freezes within the cracks. This underground ice remains into the following summer, cooling the subterranean air and water which flows from the talus. This produces a cool and humid microclimate which supports flora and fauna very different from areas just a few feet away. Many of these rare species are glacial relicts or are disjunct from their normal range.

The algific slopes may range in size from a few square feet to narrow strips a half-mile long and are generally adjacent to a creek or river. The sinkhole(s) may be located up to one-half mile from the slope.

Threats to the rare species and fragile habitats include logging, quarrying, livestock grazing and trampling, rock falls, pesticide runoff or drift, and human foot traffic.

The 506 acres purchased to date include approximately 359 acres of wooded hillsides, 95 acres of old fields and pastures, and 52 acres of land farmed under a Cooperative Farming Agreement in 1991.

Currently, all administration and management is conducted by staff of the Upper Mississippi River National Wildlife and Fish Refuge, McGregor District. Eventually, the Refuge will be operated under a separate budget with the possibility of a maintenance/office facility and staff located in an area central to the Driftless Area National Wildlife Refuge units.

INTRODUCTION

G. WILDLIFE

H. PUBLIC USE

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J. OTHER ITEMS

Some algific slopes are very steep and cliff-like. Flooding removed much of the talus base at this slope.
9/91 BL

A. HIGHLIGHTS

1991 was a very active year for management and land acquisition. Highlights for the year include:

Fee title acquisition of two additional tracts, almost doubling the Refuge acreage. (Section C.1.)

Initiation of a long-term monkshood monitoring program. (Section D.5.)

Trash removal from five sinkholes. (Section F.1.)

A tour and orientation was provided for two visiting Russian biologists. (Section J.3.)

B. CLIMATIC CONDITIONS

The most significant weather event of the year was localized heavy rainfall the night of June 13 which caused severe flooding and damage to parts of Clayton County. Several refuge fences and boundary signs were destroyed and the bases of two algific talus slopes were disturbed. In some areas of the County, creek levels were the highest ever recorded.

On March 27, while inspecting the Jackson County unit, Bio-Tech Bruce Luebke found himself in a fast moving thunderstorm. While taking refuge in a ravine and shielding himself with a clipboard, he endured 3/4-inch hail, heavy rain, strong winds, and watched a tornado pass about 1 mile away.

Table 1. Precipitation and Temperature Data - 1991*.

	Temperature (°F)				Precipitation (inches)		
Month	Min.	Max.	Avg.	** Depart.	Prec.	** Depart.	Snow
Jan.	-27	42	12.0	-8.7	1.01	- 0.35	15.50
Feb.	- 7	50	26.0	+3.4	.12	- 0.81	1.50
March	11	80	37.0	+2.9	4.24	+ 2.25	8.15
April	27	81	49.5	+1.4	7.25	+ 4.45	----
May	30	90	63.0	+3.9	3.58	- 0.42	----
June	45	94	72.0	+3.8	4.73	+ 1.37	----
July	47	93	72.5	-0.7	4.29	+ 1.23	----

	Temperature (°F)				Precipitation (inches)		
Month	Min.	Max.	Avg.	** Depart.	Prec.	** Depart.	Snow
Aug.	49	91	71.5	+0.9	4.80	+ 0.44	----
Sept.	26	86	60.0	-1.5	3.74	- 0.04	----
Oct.	19	78	50.0	+1.2	3.92	+ 1.27	----
Nov.	-11	55	29.5	-6.2	6.30	+ 4.10	17.50
Dec.	- 7	47	25.5	+6.6	1.68	+ 0.35	7.00
Yearly Total				+7.0	45.66	+13.84	49.65

* Official weather station at Osborne Nature Center, Clayton County, Iowa.

** Departure from 1983-90 average.

C. LAND ACQUISITION

1. Fee Title

Two tracts, totaling 224 acres were purchased in 1991 for $135,400. In Clayton County, 204 acres were purchased from The Nature Conservancy. The other tract of 20 acres was purchased from a retired couple in Jackson County.

The eight tracts purchased to date make up six separate management units ranging in size from 6 to 209 acres. They contain from 1 to 5 slopes for a total of 13.

Thirty-four sites have been prioritized for acquisition, and purchases will continue as funding and willing sellers allow.

3. Other

Plans are underway to carry out a land trade with The Nature Conservancy. If this is accomplished, excess lands that do not contribute to Refuge purposes would be removed from the Refuge in return for additional algific talus slopes. The excess land includes about 55 tillable acres, a house, and several outbuildings. The Conservancy would sell these and then recycle the money back into algific talus slope acquisition.

D. PLANNING

1. Master Plan

A master plan has not yet been prepared as the Refuge is still in early stages of development, acquisition, and management.

2. Management Plan

A draft management prospectus was prepared in 1990. It will be refined into a management plan as soon as procedures are developed.

4. Compliance with Environmental and Cultural Resource Mandates

Prior to acquisition of each tract, the Iowa Bureau of Historic Preservation was consulted to insure protection of any cultural resources. No cultural resources are known to exist on the Refuge.

5. Research and Investigations

In 1991, the Refuge and The Nature Conservancy began a cooperative, long-term monitoring study of northern monkshood in Iowa. The monitoring team, with one staff member from each organization, is looking at the population status on both the Refuge and privately owned sites. The Iowa Department of Natural Resources is also involved on State areas. Study objectives are to document population trends, responses to management, and the success, or lack thereof, in achieving recovery goals. Methods include the establishment of permanent transects, study plots, and photo-points. Data are collected on plant demographics on a three year rotation with roughly one-third of the known Iowa populations being monitored each year.

Snail distribution and relative abundance were investigated during the summer on one of the Refuge slopes. This simple technique was developed by personnel from The Nature Conservancy and requires the placement of 2" x 12" x 18" rough-sawn, basswood boards on the slope. A variety of land snails are attracted to the dark, moist underside of the boards and they can be easily turned over for inspection. Twelve boards were distributed across the Refuge slope and checked weekly. Only a few of the endangered Discus snails were discovered. Surprisingly, they were on the slope's fringe in somewhat warm and dry areas subject to past grazing. In the process, Bio-Tech Luebke learned to identify a variety of land snail species.

E. ADMINISTRATION

1. Personnel

The Driftless Area NWR has been the primary assignment of temporary Bio-Tech Bruce Luebke since 1990. By year-end, Bruce's appointment to career-conditional status as Refuge Operations Specialist had been confirmed. A Special Achievement Award was presented to Bruce in

No obstacle was too large to keep Janet Reis of The Nature Conservancy from monitoring monkshood.
9/91 BL

Algific talus slope monitoring: a photo-point, transect line, and snail board.
9/91 BL

February recognizing his contribution to the Refuge and for preparation of the Refuge Management Prospectus. His duties have also included other activities with the Upper Mississippi River National Wildlife and Fish Refuge, McGregor District. Bruce is assisted on the Driftless Area NWR by McGregor District staff as needed.

1 - 5 - 3 - 4 - 6 - 2

12/91 BG

PICTURE KEY

1. Bruce A. Luebke ----- Biological Technician, TFT, GS-5/1, EOD 6/18/90

Additional McGregor District Staff

2. John R. Lyons ------- District Manager

3. Richard A. Weide ---- Assistant District Manager

4. Dixie L. Palmer ----- Office Assistant

5. Clyde B. Male ------- Refuge Operations Specialist

6. James D. Brown ------ Maintenance Worker

The following training was completed during the year:

Bruce Luebke

Pesticide Applicator Certification	February	Elkader, IA
CPR Refresher	April	Prairie du Chien, WI
Mussel Identification Workshop	June	Prairie du Chien, WI
Heavy Equipment Certification	June	Shakopee, MN
Moist Soil Management	July	Annada, MO

5. Funding

Operation and management costs were included in the budget of the Upper Mississippi River NW&FR, McGregor District. Funds earmarked for the Driftless Area NWR were:

FY 1991	$30,000
FY 1990	$17,000

An additional $4,000 was received from the Division of Endangered Species to be used for fencing.

6. Safety

No accidents or other related events occurred on the Refuge.

Bio-Tech Luebke tested negative for Lyme Disease.

Protective clothing and equipment was purchased prior to herbicide application and used as warranted.

8. Other

Personnel from the Iowa Field Office of The Nature Conservancy have performed a significant role in algific talus slope identification and preservation. They are frequently consulted regarding management, biology and acquisitions.

F. HABITAT MANAGEMENT

1. General

Refuge management is directed at the preservation of the slopes, sinkholes, and surrounding buffer zones. As a result, and because most of the units are small, the Refuge has not directed efforts to land management activities for other objectives. The woodlands and former agricultural lands of the larger units may provide limited wildlife management opportunities in addition to the basic protection given to the threatened and endangered species. This is decided on an individual basis.

During 1991, trash and debris were removed from five sinkholes. The primary reason for the clean-up was to restore/improve air and water

Unfortunately, sinkholes make convenient dumpsites. This is just a small portion of the more than 40 tons of trash removed in 1991.

8/90 BL

Maintenance worker Jim Brown trying to get to get to the bottom of things.
8/91 BL

flows to the algific slopes. Other benefits included groundwater protection, removal of safety hazards, and aesthetics.

On the Dubuque County unit, it was necessary to hire a contractor with a John Deere 690 tracked backhoe and 3 dump trucks to remove 40 tons of trash. Over four tons of scrap metal were sold to an area dealer for $111.75. An additional truckload of tires and a refrigerator was taken to recyclers. The remaining 35 tons of trash had to be hauled to a landfill with tipping fees totalling $808.00.

Refuge staff also cleaned out a sinkhole at a Clayton County unit by hand. Items removed and taken to local recyclers included 18 tires, numerous appliances, hog feeders and a snowmobile!

4. Croplands

At the time of acquisition, one Refuge unit had 52 acres of land under cultivation. Now that the threat of atrazine carryover is gone, the fields are being converted to grasses to reduce soil erosion and provide wildlife habitat. Through a cooperative farming agreement, a 29 acre field was converted from row crops and planted to cool-season grasses with an oats nurse crop. An additional 23 acres were planted to corn with 25 percent remaining for wildlife food and cover. These fields are far removed from the slopes and such activity poses no threat to the rare species.

5. Grasslands

Refuge grasslands include 62 acres of old fields and pastures. Most consist of exotic, cool-season grasses and weeds. One former pasture contains a small prairie remnant with side-oats gramma, little bluestem, big bluestem and native forbs.

Natural succession is allowed on open areas nearest the slopes to provide a natural woodland buffer.

6. Other Habitats

The small, fragile algific talus slopes are the main feature of the Refuge and are being preserved in their present, natural state. Management activities include boundary signing, fencing, and periodic patrols for disturbance.

10. Pest Control

Unfortunately, the exotic leafy spurge is present on the Refuge. This noxious weed was found in numerous small patches scattered across one of the units. Control was begun on the patches away from the slopes by spot spraying picloram with a backpack sprayer. Picloram is reportedly the most effective herbicide for spurge. All treated plants wilted and died shortly after spraying but eradication of this tenacious plant may take years.

Leafy spurge has begun it's march across the landscape. This is the largest of the numerous patches found on the Refuge. The oat/grass planting on the former agriculture land is visible in the background.

5/91 BL

Northern monkshood at it's prime. The name is appropriate given it's distinctive hoods.
MK

A rare, white phase of the northern monkshood.
8/91 BL

Buckthorn was another exotic identified on the Refuge. This shrub or small tree can invade woodlands to the point of dominating the understory. Control will be necessary to prevent further spread.

G. WILDLIFE

1. Wildlife Diversity

The algific talus slopes and associated rare species are the primary feature of the Refuge. Also present are a variety of resident and migratory species typical of northeast Iowa. Management for these species may occur when it is compatible with the primary objectives of the Refuge.

2. Endangered and Threatened Species

The Iowa Pleistocene snail and/or northern monkshood plant occur on all of the units and their well-being is top priority. The 13 refuge slopes appear to be faring well. In 1986, pre-acquisition estimates revealed 7,000 Iowa Pleistocene snails and 10,500 northern monkshood plants on the present Refuge slopes. Long-term population monitoring and photo-points should indicate responses to protection from grazing, logging, and other activities excluded from the Refuge.

Two algific slopes in Clayton County, were affected by flooding which removed portions of the talus. The flooding and talus erosion was apparently not an isolated event as these slopes were already very steep and cliff-like, with most of the talus gone. These slopes appear to be developing into a similar structure called a maderate cliff. Maderate cliffs have slightly different characteristics than an algific talus slope, enough so that they may be home to a different community of rare snails and plants.

During the year, malacologist Dr. Terrence Frest completed a status report on eight snail taxa. Based upon this report, these snails were proposed for federal listing. Once listed, additional algific slopes and maderate cliffs will be targeted for addition to the Refuge.

During winter months, bald eagles were occasionally seen over the Refuge as they ventured away from the nearby Mississippi River.

8. Game Mammals

White-tailed deer, gray and fox squirrels, cottontail rabbits, raccoon, beaver, opossum, and coyotes were seen or heard regularly on the Refuge.

10. Other Resident Wildlife

Numerous turkeys and an occasional ruffed grouse, woodcock, or ring-necked pheasant were seen on the Refuge. In May, a turkey nest with 10 eggs was discovered in almost the exact location as the previous year.

The Iowa Pleistocene snail, doing whatever it is that snails do.
9/91 BL

11. Fisheries Resources

State designated trout streams form the boundaries on two Refuge units. Fishing activity was light and appeared to have no effect on the Refuge.

H. PUBLIC USE

1. General

Preservation of the slopes and protection of associated rare species has priority over public use. Because the slopes are very fragile, the Refuge will continue to maintain a relatively low profile. Compatible forms of recreation may be permitted on some units where there is adequate buffer, but there will continue to be no special promotion, developments, or refuge maps distributed. Public access to some units is limited and can be gained only by crossing adjacent private property. Little public use occurred in 1991.

6. Interpretive Exhibits/Demonstrations

At the request of personnel from the Iowa Field Office of The Nature Conservancy, Bio-Tech Luebke presented a Refuge display at their annual meeting in Ames, Iowa. It was well received and generated several compliments. The display is now in use at the Visitor Contact Facility of the McGregor District Office.

8. Hunting

An opening package was drafted for consideration to allow limited public hunting and fishing on selected Refuge units. Supporting documents were organized and scoping letters were mailed to various organizations to solicit comments. At the end of the year, selected courses of action were being described for adoption.

17. Law Enforcement

All Refuge units are periodically monitored for signs of disturbance or damaging activity. No particular problems were encountered during 1991.

I. EQUIPMENT AND FACILITIES

1. New Construction

Approximately one-half mile of barbed wire fence was constructed on the new Jackson County unit. The Refuge supplied the materials while contractors cleared trees and brush and installed the fence. Difficulties were encountered while negotiating with a neighbor over fence placement and type. The completion of this fence was real progress and cause for celebration.

Fence construction and maintenance is proving to be a significant task. Fences are necessary to establish boundaries, prevent cattle and vehicle

The new Refuge display.

12/91 BL

trespass, and satisfy responsibilities to adjacent farmers. Refuge image is influenced greatly by the manner in which we relate to our neighbors.

2. Rehabilitation

On the new Clayton County unit, a safety hazard and eyesore was remedied. At one time there had been a small, country schoolhouse on the property but all that remained was the foundation and open basement, which had been partially filled with trash. A contractor was hired to clean up the area and fill the old basement with soil. The task was completed by sowing grass seed on the site.

4. Equipment Utilization and Replacement

A Honda 4-wheel ATV was purchased and proved very useful for signing and fence repair. Use is shared with the McGregor District.

A compact 4x4 pickup truck was ordered during the year to complement the 4x2 half-ton. Delivery should occur in spring 1992.

J. OTHER ITEMS

3. Items of Interest

On July 8, 1991, Refuge staff had the pleasure of being host to two visiting Russian biologists. Dr. Viatcheslav V. Berezin of the USSR Academy of Sciences and his interpreter, Elena Smirenskaya, were guided by Ron Windingstad of the National Wildlife Health Center. They were very impressed that a refuge had been established for snails and plants. The day proved interesting.

4. Credits

Bruce Luebke: Writing and assembly.

Kathy Maycroft: Editing.

John Lyons: Editing.

Dixie Palmer: Typing on IBM computer.

This old building site was both a safety hazard and an eyesore.
4/91 BL

The same site after clean up.
6/91 BL

Mosses and birch trees are common algific talus slope flora.
4/91 BL